

PATENT SPECIFICATION

962,312

DRAWINGS ATTACHED.

Inventor :—ALBERT PETER MORRIS.

962,312



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COMPLETE SPECIFICATION.

Improvements in Nuts.

We, G.K.N. SCREWS AND FASTENERS LIMITED (formerly known as Guest Keen & Nettlefolds (Midlands) Limited), a British Company, of Heath Street, Birmingham 18,

5 in the County of Warwick, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement :—

10 This invention relates to nuts which are used in the securing of parts or objects to T-channel guideways. One common use of such nuts in engineering practice, is in the securing of work or tools to the T-channel guideways provided in the work-table, bed or other part of a machine tool, for example, the longitudinally extending guideways on the work-table of a milling, drilling, planing, or the like machine.

15 Such nuts (commonly known as "T" nuts) are of the type having an enlarged portion which fits inside the channel and a reduced portion which projects into the slot defined by the outer flanges of the channel, the enlarged portion preventing rotation of the nut within the channel when a bolt or other screwed stem is being applied.

20 However as the dimensions of the enlarged portion prevent this part from being passed through the slot of the channel, such nuts produced hitherto can only be inserted from an open end of the channel. This is a time wasting operation and also an extra nut, or 25 nuts, cannot be inserted between two nuts already in position without having to dismantle the complete set up. Furthermore, swarf and dirt can get into the channel and can cause blockages which means that 30 obstructions have first to be cleared away every time it is required to put in a fresh nut or to remove one or more nuts from the channel.

The object of the present invention is to provide an improved form of nut which will 45 obviate the above mentioned drawbacks.

According to the invention we provide a nut of the type specified comprising a head portion and a shank portion, the head portion being disposed within the channel and the shank portion projecting into the slot of the channel when the nut is in position in a channel section guideway, the head portion being of non-rectangular parallelogram from having a maximum width dimension less than the width of the slot in the channel with which the nut is to be used to permit the head portion to be passed between the two flanges defining the slot, and the head portion having its maximum diagonal dimension greater than the interior width of the said channel, those two faces of the head portion of the nut which are normal to the longitudinal axis of the shank portion having maximum diagonal dimensions which are identical or substantially identical with one another.

50 In referring to the width dimension of the head of the nut, we mean the dimension measured between the opposed sides of the head when the head is being passed through the slot, this dimension being at right-angles to the length of the slot. The diagonal dimension above referred to is the greatest distance between opposite corners of the 55 head of the nut.

55 With this arrangement, the shank portion of the nut can be of simple sleeve-like form and of circular cross-section.

60 The invention is illustrated in the accompanying drawings wherein :—

65 Figure 1 is a plan view showing a part of a guideway with the nut of the present invention in the process of being inserted into the guideway.

70 Figure 2 is a similar view but showing the 75

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nut having been turned to lock it in position in the guideway.

Figure 3 is a section on the line 3—3 in Figure 2.

5 In the embodiment of the invention shown in the drawings, the shank portion of the nut is in the form of a sleeve 10 of circular cross-section and formed integrally with the head 11 so as to extend axially away from the head in a direction normal to the flat face 12 of the head. The external surface of this sleeve-like shank portion 10 may, if desired, be knurled or similarly roughened to enable it to be easily grasped for the purpose of placing the nut in position. The head of the nut, in plan view, is of non-rectangular parallelogram shape having a width which is equal to the diameter of the sleeve-like shank portion and this width is such that it is slightly less than the distance between the flanges 13 defining the slot 14 of the channel-section guideway 15 with which the nut is to be used.

10 The dimension of the diagonal distance between the two corners (16, 16) of the nut is chosen so that this distance is greater than the interior width of the channel 15 into which the nut is to be placed. The final shape of the head, in plan, is that of a non-rectangular parallelogram and may have a smaller angle of about 70°, as shown.

15 With this arrangement, the nut can be placed in the channel 15 by passing the head 11 through the slot 14 of the channel (see Figure 1) and then rotating the nut so that portions of the head come underneath the flanges 13 defining the slot 14 (see Figure 2) and, with the shape of the head described above, the head 11 can be turned through an angle of about 70° after being passed through the slot 14, at which point further rotation is prevented because the two shorter sides of the head of the nut, have come into substantially face-to-face engagement with the side walls 17 of the channel 15. As seen in Figure 2, the actual engagement is at the corners 16 of the nut but the clearance has

been exaggerated in the drawing and in practice there will be substantially a face-to-face engagement. Thereafter the bolt or other screwed stem can be engaged with the nut and tightened up, and it will be appreciated that any tendency to rotate due to the tightening action of the bolt will be prevented because of the locking engagement existing between the shorter sides of the head of the nut and the sides of the channel.

WHAT WE CLAIM IS:—

1. A nut of the type specified comprising a head portion and a shank portion, the head portion being disposed within the channel and the shank portion projecting into the slot of the channel when the nut is in position in a channel section guideway, the head portion being of non-rectangular parallelogram form having a maximum width dimension less than the width of the slot in the channel with which the nut is to be used to permit the head portion to be passed between the two flanges defining the slot, and the head portion having its maximum diagonal dimension greater than the interior width of the said channel, those two faces of the head portion of the nut which are normal to the longitudinal axis of the shank portion having maximum diagonal dimensions which are identical or substantially identical with one another.

2. A nut according to Claim 1 wherein the smaller angle of the parallelogram head is of the order of 70°.

3. A nut substantially as described with reference to and as shown in the accompanying drawing.

FORRESTER, KETLEY & CO.,
Chartered Patent Agents,
Central House,
75 New Street, Birmingham 2,
and
Jessel Chambers,
88/90 Chancery Lane, London, W.C.2.

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COMPLETE SPECIFICATION

1 SHEET

This drawing is a reproduction of
the Original on a reduced scale

Fig. 1.

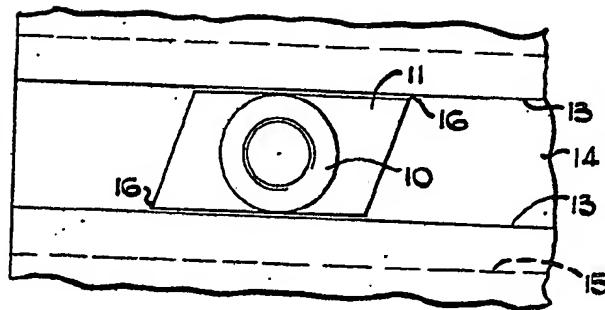


Fig. 2.

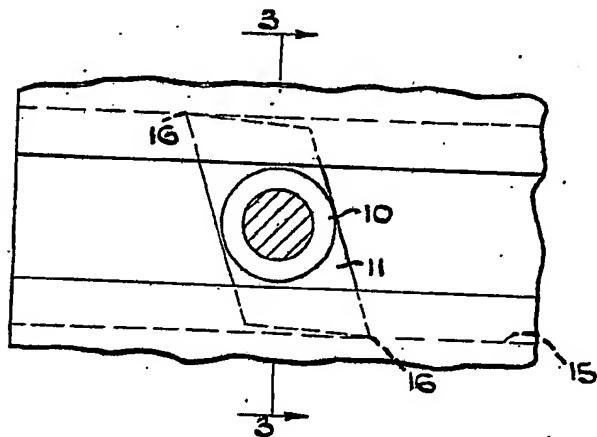
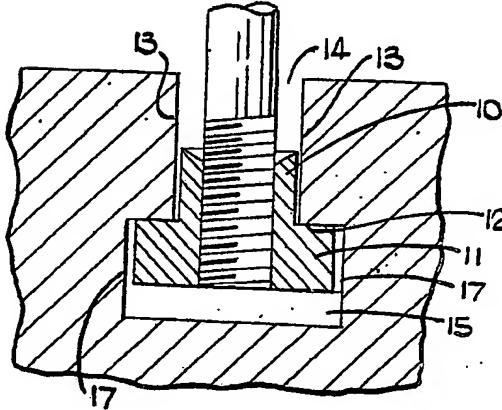


Fig. 3



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